Ashley College Curriculum 2020-21		Subject: SCIENCE					Teacher: Frank Ofori	
		Brief/ Heading from subject LTPs						
Groups		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	Subject Intent	Syllabus/ exam board qualification Suggested reading/text books
KS3		**9.1 Biology:** Variation for survival Differences between species The importance of maintaining biodiversity Highlight issues around natural selection, selective breeding and genetic engineering	**9.3 Chemistry:** Obtaining useful materials Earth as a source of limited resources How new materials are obtained and the importance of recycling / upcycling.	**9.5 Physics:** Motion of the Earth in space The representation of a journey on a distance–time graph Speed and the quantitative relationship between average speed, distance and time (speed = distance ÷ time) **The math of calculating speed and representing this in a graph.**	**9.2 Biology:** Our health and the effect of drugs The effects of 'recreational' drugs (including substance misuse) on behaviour, health and life processes Link to the present pandemic and the effect of drugs on road safety	**9.4 Chemistry:** Using our Earth sustainably The production of carbon dioxide by human activity and the impact on climate. Examine the responsibility for global issues	**9.6 Physics:** Waves and energy transfer Waves on water as undulations which travel through water with transverse motion; these waves can be reflected, and add or cancel – superposition The real and apparent dangers of EM radiation.	Students should continue to be able to work scientifically in their approach to understanding the world around them. They should understand that many ideas we use in science today are ideas that fit a model and that models can and do change as new information and discoveries become known. At Ashley College, we strive to develop a deeper understanding of a range of scientific ideas in the subject disciplines of biology, chemistry and physics and work to begin to see the connections between these subject areas and become aware of some of the big ideas underpinning scientific knowledge and understanding. Students are encouraged to relate scientific explanations to phenomena in the world around them a start to use modelling and abstract ideas to develop and evaluate explanations. At Ashley College, we all recognise our responsibility of teaching students well through our curriculum. Lessons reflect subject knowledge through clearly presented materials that engage and inspire discussion. We appropriately scaffolded lessons to ensure that all students can achieve the highest standards. We sequence the curriculum in each area to ensure that students are able to recall prior knowledge and build upon this, making connection within and across subjects. Students will revisit previous learning and be able to show their understanding through activities that require application of prior knowledge. We develop skills for future learning and employment, for example team work: listening and speaking, in all areas of our curriculum.	The syllabus – Collins Key Stage 3 Science. Students use the Collins Textbooks: Student Book 1 Student Book 2 Student Book 3 Some content is taken from: Spotlight Science books 7, 8 & 9 Fusion Science course books 1, 2 & 3 Students are encouraged to use Key Stage 3 revision books.
KS4	Yr10	**UNIT 1** **Building Blocks** States of matter Atomic structure The use of models to explain science Cells in animals and plants Moral issues involved in genetic engineering and cloning Waves Unproven fears about the effect of EM radiation and the real dangers	**UNIT 5** **Building blocks for understanding** The periodic table Chemical quantities Mathematical calculations in moles and bond energies	**UNIT 2** **Transport over larger distances** Systems in the human body Plants and photosynthesis Plant's place in keeping the atmosphere in balance removing carbon dioxide and production of oxygen	**UNIT 6** **Interactions over small and large distances** Forces and energy changes Renewable energy sources Structure and bonding Linked back to chemical quantities Magnetism and electromagnetism	**UNIT 3** **Interactions with the environment** Lifestyle and health Link with health issues in PE and Food Tech. Radiation and risk Link back to Waves and EM spectrum	**UNIT 3 (continued)** **Interactions with the environment (continued)** Preventing, treating and curing diseases Looking at the present pandemic Production and development of drugs and vaccines	Students should continue to be able to work scientifically in their approach to understanding the world around them. They should understand that many ideas we use in science today are ideas that fit a model and that models can and do change as new information and discoveries become known. At Ashley College, we strive to develop a deeper understanding of a range of scientific ideas in the subject disciplines of Biology, Chemistry and Physics working to begin to see the connections between these subject areas and become aware of some of the big ideas underpinning scientific knowledge and understanding. Students are encouraged to relate scientific explanations to phenomena in the world around them a start to use modelling and abstract ideas to develop and evaluate explanations.	The syllabus – AQA Combined Science Synergy. Students use the Textbooks: AQA GCSE Life and Environmental Sciences for Combined Science: Synergy. AQA GCSE Physical Sciences for Combined Science: Synergy Use is also made of the Collins textbooks: AQA GCSE (9- 1) Biology for Combined Science: Trilogy.

KS4	Yr11	**UNIT 7** **Movement and interactions** Forces and Motion Link to use of drugs / alcohol with reaction time and road safety Electricity Acids and Alkalis Maths of concentration and titration	**UNIT 7 (continued)** **Movement and interactions** The rate and extent of chemical change Chemical quantities Atoms and ions Maths of scale, suffixes + prefixes In measurements and magnification	**UNIT 4** **Explaining change** The Earth's atmosphere Global responsibility for national issues – Pollution; global warming; ozone. Ecosystems and biodiversity Valuing all in nature and the contribution each makes to maintain balance. Inheritance, Variation and evolution Link back to the issues covered in genetics	**UNIT 8** **Guiding spaceship Earth to a sustainable future** Carbon Chemistry Link back to the role of plants in the carbon cycle and maintaining the environment. Resources of materials and energy The importance of recycling and upcycling.	**Revision of year 10 work &Past paper Practice**		At Ashley College, we all recognise our responsibility of teaching students well through our curriculum. Lessons reflect subject knowledge through clearly presented materials that engage and inspire discussion. We appropriately scaffold lessons to ensure that all students can achieve the highest standards. The school sequences the curriculum in each area to ensure that students are able to recall prior knowledge and build upon this making connection within and across subjects. Students will revisit previous learning and be able to show their understanding through activities that require application of prior knowledge. We develop skills for future learning and employment, for example team work, listening and speaking, in all areas of our curriculum. We recognise the need for all students to have the opportunity to study all disciplines of Science at the college but we also accept that not all students will stay in Ashley College for the complete key-stage and therefore may not have the time to cover every aspect of all Sciences. For this reason, all students will have the opportunity to continue a spiralled general Science curriculum in key-stage 3 and follow the AQA entry level Science that could lead to a GCSE in Coordinated Science Synergy. We recognise the need for all students to have the opportunity to study all disciplines of Science at the college but we also accept that not all students will stay in Ashley College for the complete key-stage and therefore may not have the time to cover every aspect of all Sciences. For this reason, all students will have the opportunity to complete the whole of AQA entry level Science and will be able to complete Coordinated Science Synergy.	AQA GCSE (9- 1) Chemistry for Combined Science: Trilogy AQA GCSE (9- 1) Physics for Combined Science: Trilogy CGP GCSE Combined Science for AQA (Grade 9 – 1) The Revision Guide Higher Level Foundation Level